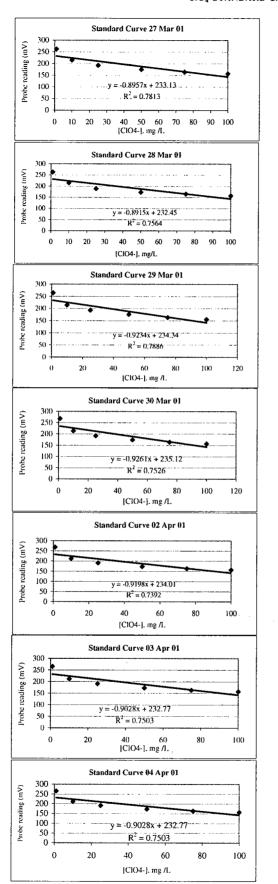
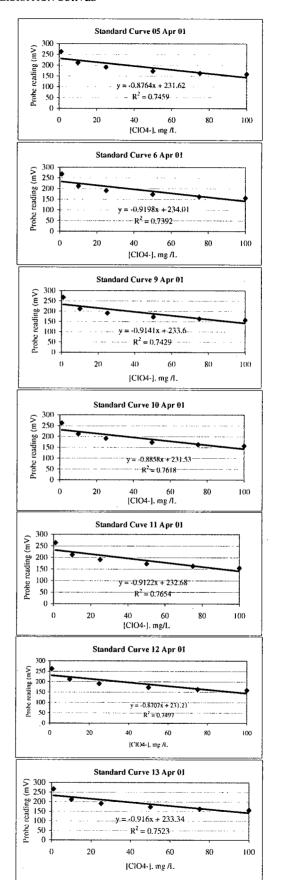
APPENDIX B

PHASE I PARAMETERS AND CLO₄-PROBE CALIBRATION CURVES

PHASE I START-UP CIO, STANDARD CALIBRATION CURVES





PHASE I OPERATING DATA JET PROPULSION LABORATORY

| Date | Time | Parameter | R) | R2 | R3 | Notes (pH/Temp/Flow Adjustments) |
|---------------|------------------|-----------------------------------|-----------|--------------|--------------|--|
| 3/26/2001 | 12:25pm | Temp (°C) | 17.5 | 17.7 | 17.6 | Turned on thermostat @11am |
| .11 201 200 1 | 3:40pm | Temp (°C) | 28.2 | 28.2 | 28.2 | Turned down thermostat setting |
| | 7:30am | Temp (°C) | 35.4 | 35.1 | 34.2 | Turned down thermostat setting |
| | 8:50am | pН | 7.61 | 7.5 | 7.55 | |
| | 9:20-45am | Pressure Drop | | | | Added ice to inocula tanks |
| | 11:30am | (psi) | 14 | 26 | 26 | |
| 2/27/2001 | 12:25pm | Temp (°C) | 30.1 | 29.9 | 30.1 | |
| 3/27/2001 | 12.28 p | pH | 7.53-7.65 | 7.46 | 7.67 | · · · · · · · · · · · · · · · · · · · |
| | | conductivity | | | | |
| | | (dS/m) | 2.32 | 1.57 | 2.32 | |
| | 3:00pm | Temp (°C) Pressure Drop | | 32.7-33.6 | | |
| | | (psi) | | 28 psi | | |
| | 7:45am | Temp (°C) | 23.1 | 23 | 24.5 | |
| | | Pressure Drop | | | | |
| | | (psi) | 28 | 29 | 28 | |
| | - | Temp (°C) | 21.8 | 21.6 | 22.8 | |
| 3/28/2001 | | pH conductivity | 7.39 | 7.04 | 7.3 | |
| | | (dS/m) | 2.05 | 1.46 | 2.3 | |
| | 1:45pm | Temp (°C) | 26.2 | 27.5 | 28.7 | 72.74 |
| | | Pressure Drop | | | | |
| | | (psi) | 10 | 20 | 25 | |
| | 8:00am | Temp (°C) | 25.5 | 25.8 | 27.2 | |
| | | Pressure Drop (psi) | 18 | 24 | 27 | |
| | 8:35-40am | Temp (°C) | 23.4 | 23.4 | 24.2 | |
| | 0.55-40am | pH | 7.55 | 7.14 | 7.57 | |
| | | conductivity | | | | |
| 3/29/2001 | 2.15 | (dS/m) | 1.93 | 1.54 | 2.17 | 11 122 25 N CIO - PI |
| | 2:15pm 2:25pm | | | | | added 23.25g NaClO ₄ to R1 added 23.25g NaClO ₄ to R3 |
| | 2:45pm | Temp | 31.1 | 31.1 | 32.2 | system temperatures (gauge) |
| | 4:45pm | Temp (°C) | 32.2 | 32.2 | 33.3 | la seminario (gauge) |
| | | Pressure Drop | | | | |
| | 4:45pm | (psi) | 18 | 15 | 26 | |
| | 7:50 | Pressure Drop (psi) | 18 | 15 | 26 | |
| | 7.50 | Temp (°C) | 26.6 | 26.6 | 27.2 | |
| | 8:10 | Temp (°C) | 23.2 | 23.7 | 24 | |
| 3/30/2001 | | рН | 7.47 | 7.05 | 7.39 | |
| | | conductivity | 2.22 | | | |
| | 10.50 | (dS/m) | 2.07 | 1.55 | 2.31 | |
| | 12:50pm | Temp ^o F Pressure Drop | 31.1 | 31.1 | 32.2 | |
| | | (psi) | 28 | 16 | 28 | increased pressure drop through R2 by closing valve; now 20 |
| | 7:30am | Temp (°C) | 18.2 | 19.0 | 19.2 | <u> </u> |
| | | pН | 8.3 | 6.92 | 8.4 | |
| 4/2/2001 | | conductivity (dS/m) | , , | 1.50 | 2.10 | |
| | 3:30pm | (dS/m) Temp (°C) | 1.91 | 1.52 | 2.19 | |
| | 3:30pm 8:45am | | 21.1 | 22.2 | 21.9 | |
| | 8:45am 8:50am | Temp (°C) Temp (°C) | 18.8 | 20 | 20 | |
| j | o.Juan | pH | 8.41 | 17.5 4.96 | 17.3 8.38 | ****** |
| Ì | | conductivity | | | | |
| 4/3/2001 | | (dS/m) | 1.87 | 1.55 | 2.21 | |
| 71.// 2001 | 10: I 5am | | | | | Heater turned on set at 26.6 °C |
| | 11:15am | Temp (°C) | | 20.4 | | |
| | 11:45am | Temp (°C) | 20.7 | 20.7 | 20.9 | |
| | 5:15pm | Temp (°C) | | 24 | n | |

PHASE I OPERATING DATA JET PROPULSION LABORATORY

| 1 | | рН | [| 6.3 | | |
|-----------|--------------|------------------------|--------------|--------------|--------------|--|
| | 8:15am | <u> </u> | | | | Heater turned on set at 26.6°C |
| | 8:37am | Temp (°C) | 16.9 | 17.1 | 17 | Tremes rained on set at 20.0 C |
| 4/4/0001 | 6.57am | pH | 8.14 | 5.78 | 8.18 | |
| 4/4/2001 | | conductivity | 0.14 | 3.70 | 0.10 | |
| | | (dS/m) | 1.95 | 1.69 | 2.23 | |
| | 4:40pm | | | | | turn off heater |
| | 8:15am | Temp (°C) | 18.9 | 18.9 | 18.9 | Heater turned on set at 26.6°C |
| | 8:32-36am | Temp (°C) | 17.2 | 17.7 | 17.2 | |
| | | pН | 7.58 | 5.52 | 7.7 | |
| | | conductivity | | | | |
| 4/5/2001 | | (dS/m) | 2.14 | 1.84 | 2.46 | |
| 1 | 11:45am | Temp (°C) | | 23.1 | | |
| | | рН | | 5.7 | | |
| | 2:40pm | Temp (°C) | | 26.1 | | |
| | ļ | pН | | 6.67 | | cut heat for all three reactors |
| | 8:42-50am | Temp (°C) | 14.9 | 15 | 16.3 | |
| | ļ | pН | 8.19 | 6.28 | 8.27 | added HCl to R1, R3 to bring pH down and NaOH to R2 |
| 4/6/2001 | | conductivity | 2.00 | | 1 25. | |
| 7/0/2001 | 10:20am | (dS/m) pH | 2.22 7.88 | 1.87 | 2.54 8.07 | |
| | 11:30am | рн pH | 7.69 | 7.18 | 7.85 | |
| | 12:50am | pН | 7.63 | 7.37 | 7.93 | |
| | 11:15am | Temp (°C) | 15.1 | 15.2 | 16.1 | |
| | | pH | 8.78 | 6.82 | 8.64 | need to adjust pH in all three reactors |
| | | conductivity | | <u> </u> | | |
| 4/9/2001 | L | (dS/m) | 2.3 | 1.98 | 2.51 | |
| | 1:30pm | pН | 8.4 | | 8.4 | |
| | 3:50pm | pН | 8.29 | | 8.32 | WALL CAUCH DE DO COMMENT |
| ļ | 4:00pm | | | | | added 4mL 6M HCl to R1, R3 to bring pH down |
| | 8:15am | Temp (°C) | 11.3 | | 12.6 | |
| | | pH conductivity | 8.18 | | 8.23 | |
| | | (dS/m) | 1.75 | | 2.58 | |
| | 11:50am | Temp (°C) | 17.3 | | 18.3 | |
| 4/10/2021 | | pH | 7.83 | | 8.0205 | |
| 4/10/2001 | 1:45am | Temp (°C) | 20.3 | | 21.6 | |
| | 1 | pH | 7.78 | | 7.9697 | |
| | 3:40pm | Temp (°C) | 23.5 | | 24 | |
| | | рН | 7.7 | | 7.92 | |
| | 3:50pm | | | | | added HCl to R1 (20 mL), R3 (30mL) |
| | 3:55pm | | | | | turn off heat trace |
| | 8:37-40am | Temp (°C) | 17.1 | | 18.3 | |
| | | pН | 8.34 | | 8.47 | |
| | | conductivity (dS/m) | 211 | | 2.02 | |
| | 10.50 | | 2.11 | | 3.03 | |
| 4/11/2001 | 10:50am | Temp (°C) pH | 17.9 8.09 | | 18.3 | |
| | 2,15 | | | | 8.3 | |
| | 3:15pm | Temp (°C) | 17.5 7.98 | | 18.6 8.13 | |
| | | conductivity | 1.70 | | 0.13 | |
| | | (dS/m) | 1.65 | | 2.23 | |
| | 10:10am | | | | | turn on heat trace for R1, R3 - set at 26.6°C |
| | 10:18-20am | Temp (°C) | 16.8 | | 17.9 | The second secon |
| | .0.10-204111 | pH | 8.38 | | 8.46 | |
| | | conductivity | | | | |
| 4/12/2001 | | (dS/m) | 1.78 | | 2.42 | |
| | 1:00pm | Temp (°C) | 22.7 | | 23.5 | |
| | | pН | 8.10-12 | | 8.19 | |
| | 3:15pm | Temp (°C) | 25 | | 27.6 | |
| | | • рН | 8.05 | | 7.96 | |
| | 8:35am | Temp (°C) | 20 | | 21.1 | |
| | 9:03-07am | Temp (°C) | 17.6 | | 18.9 | |
| | | • • | | | | |

PHASE I OPERATING DATA JET PROPULSION LABORATORY

| 1 | | pН | 7.92 | 8.07 | |
|-------------|------------|---------------|--------|--------|--|
| 4/13/2001 | | conductivity | | | |
| | | (dS/m) | 1.96 | 2.57 | |
| | 9:10am | | | | added 30mL 6M HCl to R1, R3 to bring pH down |
| | 11:04-07am | Temp (°C) | 21.8 | 22.7 | |
| | | pН | 7.4953 | 7.65 | |
| | 10:35am | | | | turn on aerator in EQ tank #land heater in T1 |
| 4/18/2001 | 3:00pm | | | | temp in T1 is 25°C |
| " | 3:40pm | | | | GW flowing into T1 temp is 20.4°C |
| | 3:55pm | | | | turn off heat for T1 |
| | 8:35am | | | | temp in T1 is 22.4°C; turn on heater for T1- set at 26.6°C |
| 4/19/2001 | 10:30am | | | | collected GW sample - temp.is 20.3°C; T1 temp. is 23°C |
| 1717/2001 | 2:50pm | | | *** | Determined that heat could be left on overnight |
| | 3:30pm | | | | temp. in T1 is 22.3°C |
| | 8:55am | | | | temp in T1 is 27.1 °C |
| | 9:30am | | | | temp in T1 is 27.7C; consider turning off heat |
| 4/20/2001 | 1:10pm | Temp (°C) | 25.1 | | temp in T1 is 25.4°C |
| | 1:45pm | | | | temp in T1 is 25.9°C shut off heat |
| | | Pressure Drop | | | |
| | 2:00pm | (psi) | 18 | 20 | Opened throttle valves on inlets to R1/R3 |
| 4/23/2001 | 8:30am | | | | temp in T1 20.0°C |
| ., 25, 2001 | 4:00pm | | | | temp in T1 20.7°C |
| 4/25/2001 | 9:45am | | | | temp in T1 is 21.3°C |
| | 11:30am | | | | turned on aerator in EQ tank |
| | 9:15am | | | | re-start system with R3 operating only |
| | | Pressure Drop | | | |
| 4/26/2001 | 11:20am | (psi) | | 12 | |

Notes:

R1 - perclace

R2 - compost/food waste

R3 - JPL isolates

psi - pounds per square inch dS/m - decisiemens per meter

T1 is influent Equalization Tank (see Figure 1)

mL - milliliter:

M - molar

HCl - hydrochloric acid

NaClO₄ - sodium perchlorate

APPENDIX C

PHASE I ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY RECORDS FOR GROUNDWATER SAMPLES

555 East Walnut Street
Pasadena, California 91101
Te1: 626 568 6400 Fax: 626 568 6324
1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Foster Wheeler Environ. Inc. 1940 E Deere St, Ste 200

Santa Ana , CA 92705

Attention: Mark Lossi Fax: 949 756-7560

DEB Debbie Frank Project Manager Report#: 78636

TREAT

Laboratory certifies that the test results meet all **NELAC** requirements unless noted in the Comments section or the Case Narrative. Following the cover page are QC Report, QC Summary, Data Report, Hits Report, totaling 5 page[s].

Laboratory
Hits Report
#78636

Foster Wheeler Environ. Inc. Mark Lossi 1940 E Deere St, Ste 200 Santa Ana , CA 92705

Te1: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

Samples Received 26-apr-2001 16:48:36

| Analyzed | Sample# | Sample ID | Result | UNITS | MDL |
|--|-------------------------------|----------------------------------|--------------------------------|--------------------------------------|---------------------------------|
| | 2104260260 | PBR-4-I-1 | | | |
| 04/26/01 04/26/01 04/26/01 | | as NO3 by IC -N by IC rate | 18 4 410 | mg/l mg/l ug/l | .440 .100 40.000 |
| | 2104260261 | PBR-4-I-7 | | | |
| 04/26/01 04/27/01 | Acetate Total O | rganic Carbon | 36 11.2 | mg/l mg/l | 1.000 |
| , | 2104260262 | PBR-4-E-10 | | | |
| 04/26/01 04/26/01 04/26/01 04/26/01 04/27/01 | Nitrate Acetate Perchlo | | 11 2.4 22 240 7.23 | mg/l mg/l mg/l ug/l mg/l | .880 .200 1.000 20.000 |

Laboratory
Data Report
#78636

a Division of Montgomery Watson Americas, In 555 East Walnut Street Pasadena, California 91101 Te1: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc. Mark Lossi 1940 E Deere St, Ste 200 Santa Ana , CA 92705 Samples Received 04/26/01

| Prepared | Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|----------|----------------|---------|--------------|----------------------------|-------------|-------|------|----------|
| PBR-4 | -I-1 (210 | 426026 | 0) | Sampled on 04/2 | 26/01 15:55 | | | |
| | 04/26/01 00:00 | 140320 | (CADHS/EPA | 14) Perchlorate | 410 | ug/l | 40 | 10 |
| | | | Nitrate | e by IC as NO3 & | . N | | | |
| | 04/26/01 19:57 | 140345 | (ML/EPA 300 | 0.0) Nitrate-N by IC | 4 | mg/1 | 0.10 | 1 |
| | 04/26/01 19:57 | 140345 | (ML/EPA 300 | 0.0) Nitrate as NO3 by IC | 18 | mg/l | 0.44 | 1 |
| PBR-4 | -I-7 (210 | 426026 | 1) | Sampled on 04/2 | 26/01 16:00 | | | |
| | 04/26/01 00:00 | 140319 | (ML/EPA 300 | MOD) Acetate | 36 | mg/l | 1.0 | 1 |
| | 04/27/01 00:00 | 140323 | (ML/SM 5310 | C) Total Organic Carbon | 11.2 | mg/l | 0.50 | 1 |
| PBR-4 | -E-10 (21 | 042602 | 62) | Sampled on 04/ | 26/01 16:10 | | | |
| | 04/26/01 00:00 | 140319 | (ML/EPA 300 | MOD) Acetate | 22 | mg/l | 1.0 | 1 |
| | 04/26/01 00:00 | 140320 | (CADHS/EPA | 14) Perchlorate | 240 | ug/l | 20 | 5 |
| | 04/27/01 00:00 | 140323 | (ML/SM 5310 | C) Total Organic Carbon | 7.23 | mg/l | 0.50 | 1 |
| | | | Nitrate | by IC as NO3 & | k N | | | |
| | 04/26/01 20:07 | 140348 | (ML/EPA 300 | 0.0) Nitrate-N by IC | 2.4 | mg/l | 0.20 | 2 |
| | 04/26/01 20:07 | 140348 | (ML/EPA 300 | 0.0) Nitrate as NO3 by IC | 11 | mg/l | 0.88 | 2 |



Laboratory
QC Summary
#78636

Pasadena, California 91101
Te1: 625 568 6400 Fax: 626 568 6324
1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc.

QC Ref #140319 - Acetate Analysis Date: 04/26/2001

2104260261 PBR-4-I-7

2104260262 PBR-4-E-10

QC Ref #140320 - Perchlorate Analysis Date: 04/26/2001

2104260260 PBR-4-I-1 2104260262 PBR-4-E-10

QC Ref #140323 - Total Organic Carbon Analysis Date: 04/27/2001

2104260261 PBR-4-I-7

2104260261 PBR-4-E-10 ·

QC Ref #140345 - Nitrate by IC as NO3 & N Analysis Date: 04/26/2001

2104260260 PBR-4-I-1

QC Ref #140348 - Nitrate by IC as NO3 & N Analysis Date: 04/26/2001

2104260262 PBR-4-E-10



Pasadena, California 91101
Tel: 626 568 6400 Fax: 626 568 6324
1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc.

| QC Ref | #140319 | Acetate | | | | | | |
|----------|----------------------|-----------|---------|-----------|-----------|--------------------|------|------------|
| QC | Analyte | s | Spiked | Recovered | Yield (%) | Limits (%) | RPD | (%) |
| LCS1 | Acetate | 5 | 5 | 5.09 | 101.8 | (80.00 - 120.00) | | |
| LCS2 | Acetate | 5 | 5 | 5.39 | 107.8 | (80.00 - 120.00) | 5.7 | |
| QC Ref | #140320 | Perchlora | ate | | | | | |
| QC | Analyte | g | Spiked | Recovered | Yield (%) | Limits (%) | RPD | (%) |
| MS | Spiked sample | | • | 04260260 | 11010 (8) | (0.00 - 0.00) | KID | (0) |
| LCS1 | Perchlorate | | 25.0 | 23.4 | 93.6 | (85.00 - 115.00) | | |
| LCS2 | Perchlorate | | 15.0 | 24.8 | 99.2 | (85.00 - 115.00) | 5.8 | |
| MBLK | Perchlorate | N | 10 | | | ,, | | |
| MS | Perchlorate | 2 | 5.0 | 23.1 | 92.4 | (80.00 - 120.00) | | |
| MSD | Perchlorate | 2 | 15.0 | 25.4 | 101.6 | (80.00 - 120.00) | 9.5 | |
| QC Ref | #140323 | Total Org | ganic | Carbon | | | | |
| QC | Analyte | s | piked | Recovered | Yield (%) | Limits (%) | RPD | (%) |
| AASPKSMP | Spiked sample | L | ab # 21 | 04260152 | | (0.00 - 0.00) | | |
| LCS1 | Total Organic Carbon | 0 | .5 | 0.45 | 90.0 | (75.00 - 125.00) | | |
| LCS2 | Total Organic Carbon | 4 | .5 | 4.29 | 95.3 | (75.00 - 125.00) | | |
| MBLK | Total Organic Carbon | N | ID | | | | | |
| MS | Total Organic Carbon | 8 | .0 | 7.75 | 96.9 | (90.00 - 110.00) | | |
| MSD | Total Organic Carbon | 8 | .0 | 7.73 | 96.6 | (90.00 - 110.00) | 0.26 | |
| QC Ref | #140345 | Nitrate l | by IC | as NO3 | & N | | | |
| QC | Analyte | s | piked | Recovered | Yield (%) | Limits (%) | RPD | (%) |
| MS | Spiked sample | L | ab # 21 | 04260075 | | (0.00 - 0.00) | | |
| LCS1 | Nitrate-N | 2 | .5 | 2.59 | 103.6 | (90.00 - 110.00) | | |
| LCS2 | _ | | _ | | | | | |
| | Nitrate-N | 2 | .5 | 2.57 | 102.8 | (90.00 - 110.00) | 0.78 | |

Laboratory QC Report #78636

a Division of Montgomery Watson Americas, Inc 555 East Walnut Street Pasadena, California 91101 Te1: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc. (continued)

MSD

Nitrate-N

2.5

106.4

(90.00 - 110.00) 0.38

MBLK

Nitrate as NO3 by IC

ND

QC Ref #140348

Nitrate by IC as NO3 & N

2.66

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|------|----------------------|----------|-----------|-----------|--------------------|---------|
| MS | Spiked sample | Lab # 21 | 04260075 | | (0.00 - 0.00) | |
| LCS1 | Nitrate-N | 2.5 | 2.59 | 103.6 | (90.00 - 110.00) | |
| LCS2 | Nitrate-N | 2.5 | 2.57 | 102.8 | (90.00 - 110.00) | 0.78 |
| MS | Nitrate-N | 2.5 | 2.67 | 106.8 | (90.00 - 110.00) | |
| MSD | Nitrate-N | 2.5 | 2.66 | 106.4 | (90.00 - 110.00) | 0.38 |
| MBLK | Nitrate as NO3 by IC | ND | | | | |



FOSTER WHEELER ENVIRONMENTAL CORPORATION

CHAIN OF CUSTODY FORM REQUEST FOR ANALYSIS

| PROJECT | | | | OF SHO | | | | | | PAGE | 5 | |
|--|-------------|--|--|---|--|--|--|--|--|-------------------|--|---|
| JPL PBE | ام | | | 5 | | | Non Hazard X | HAZARD IDEN I IFICATION on Hazard X Reactive | TIME REQUIRED | | | |
| PROJECT ADDRESS | or my | 70 | "Cade | 4/ | | | Flammable | Toxic | RUSHDAYS | | | |
| SAMPLER (Name) | | | The state of the s | SAMPLER (Signature) | | | ONII II II II II I | ANALYSES BEOLIBED | Ollipen | | | |
| David Tetja | Tetra | | | - Fare | Tex | | | | | | | |
| LABORATORY NO MENY | ty We | Watson L | Labs | | | | | | | THE INF | THE INFORMATION IN THIS SECTION WILL NOT | N IN L NOT |
| REPORTS TO SE SENT | 1 | | 949-756-7516 (Ph) | ` | -7560 (Fax) | | - | | 2000 | BE AW | BE AVAILABLE TO | 2 8 |
| SAMPLE | TIME | DATE | NUMBER | CONTAINER | SAMP | SAMPLE MATERIAL | 2004 201 20 | 100 | • | | | = |
| NUMBER | COLLECTED | COLLECTED COLLECTED CONTAINERS | CONTAINERS | | WATER | SOIL OTHER (Describe) | V | | | LOCATION | рертн | QC CODE |
| 78R-4.I | 15:55 | 10/92 + | 7 | 7m 52) x2 | \times | | X | | | | | |
| P62-4-I-7 | 16:00 | 4 26/01 | 7 | 40 ml, 125 ml | \sim | | <u> </u> | X | | | | |
| PBR-4-E-10 16:10 | 167.10 | 4/26/01 | 4 | 40 ml, 3x 125 m | × | | $X \times X$ | <u> </u> | | | | |
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555 East Walnut Street
Pasadena, California 91101
Te1: 626 568 6400 Fax: 626 568 6324
1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Foster Wheeler Environ. Inc. 1940 E Deere St, Ste 200

Santa Ana , CA 92705

Attention: Mark Lossi Fax: 949 756-7560

DEB Debbie Frank Project Manager Report#: 78557

TREAT

Laboratory certifies that the test results meet all **NELAC** requirements unless noted in the Comments section or the Case Narrative. Following the cover page are QC Report, QC Summary, Data Report, Hits Report, totaling 5 page[s].

Pasadena, California 91101 Tel: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227) Laboratory
Hits Report
#78557

Foster Wheeler Environ. Inc. Mark Lossi 1940 E Deere St, Ste 200 Santa Ana , CA 92705

Samples Received 25-apr-2001 16:51:13

| Analyzed | Sample# | Sample ID | Result | UNITS | MDL |
|--|--------------------|---|---------------------------|------------------------------|--------------------------------|
| | 2104250282 | PBR-3-I-1 | | | |
| 04/25/01 04/25/01 04/25/01 | | as NO3 by IC -N by IC rate | 15 3.5 420 | mg/l mg/l ug/l | .440 .100 40.000 |
| | 2104250283 | PBR-3-I-7 | | | |
| 04/27/01 | Total O | rganic Carbon | 15.1 | mg/l | .500 |
| | 2104250284 | PBR-3-E-10 | | | |
| 04/25/01 04/25/01 04/25/01 04/27/01 | Nitrate Perchlo | as NO3 by IC -N by IC rate rganic Carbon | 9.2 2.1 200 9.54 | mg/l mg/l ug/l mg/l | .880 .200 40.000 .500 |

Laboratory
Data Report
#78557

a Division of Montgomery Watson Americas, 555 East Walnut Street Pasadena, California 91101 Tel: 626 568 6400 Fax: 626 568 6324 I 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc. Mark Lossi 1940 E Deere St, Ste 200 Santa Ana , CA 92705 Samples Received 04/25/01

| Prepared | Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|----------|--------------------|---------|---------------|-------------------------|--------------|-------|------|----------|
| PBR-3 | -I-1 (2104 | 25028 | 2) S | ampled on 04/2 | 24/01 16:00 | | • | |
| | 04/25/01 00:00 | 140081 | (CADHS/EPA31 | 4) Perchlorate | 420 | ug/l | 40 | 10 |
| | | | Nitrate | by IC as NO3 | & N | | | |
| | 04/25/01 17:09 | 140333 | (ML/EPA 300. | 0) Nitrate-N by IC | 3.5 | mg/l | 0.10 | 1 |
| | 04/25/01 17:09 | 140333 | (ML/EPA 300. | 0) Nitrate as NO3 by I | C 15 | mg/l | 0.44 | 1 |
| PBR-3 | -I-7 (210 4 | 25028 | 3) S | ampled on 04/2 | 24/01 16:05 | | | |
| | 04/26/01 00:00 | 140319 | (ML/EPA 300 | MOD) Acetate | ND | mg/l | 1.0 | 1 |
| | 04/27/01 00:00 | 140246 | (ML/SM 5310C |) Total Organic Carbo | n 15.1 | mg/l | 0.50 | 1 |
| PBR-3- | -E-10 (210 | 42502 | 84) | Sampled on 04, | /24/01 16:10 | | | |
| | 04/26/01 00:00 | 140319 | (ML/EPA 300 | MOD) Acetate | ND | mg/l | 1.0 | 1 |
| | 04/25/01 00:00 | 140081 | (CADHS/EPA31 | 4) Perchlorate | 200 | ug/l | 40 | 10 |
| | 04/27/01 00:00 | 140246 | (ML/SM 5310C |) Total Organic Carbo | n 9.54 | mg/l | 0.50 | 1 |
| | | | Nitrate | by IC as NO3 | s N | | | |
| | 04/25/01 17:20 | 140334 | (ML/EPA 300. | 0) Nitrate-N by IC | 2.1 | mg/l | 0.20 | 2 |
| | 04/25/01 17:20 | 140334 | (ML/EPA 300. | 0) Nitrate as NO3 by I | C 9.2 | mg/l | 0.88 | 2 |



Laboratory QC Summary #78557

Foster Wheeler Environ. Inc.

2104250284

Te1: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

QC Ref #140081 - Perchlorate Analysis Date: 04/25/2001

2104250282 PBR-3-I-1

PBR-3-E-10

QC Ref #140246 - Total Organic Carbon Analysis Date: 04/27/2001

2104250283 PBR-3-I-7 2104250284 PBR-3-E-10

QC Ref #140319 - Acetate Analysis Date: 04/26/2001

2104250283 PBR-3-I-7

2104250283 PBR-3-I-7 2104250284 PBR-3-E-10

QC Ref #140333 - Nitrate by IC as NO3 & N Analysis Date: 04/25/2001

2104250282 PBR-3-I-1

QC Ref #140334 - Nitrate by IC as NO3 & N Analysis Date: 04/25/2001

2104250284 PBR-3-E-10



a Division of Montgomery Watson Americas, Inc 555 East Walnut Street Pasadena, California 91101 Te1: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc.

| QC Rei | #140081 | Perchlo | rate | | | |
|----------|-----------------------|---------|--------------------|-----------|-----------|-------------------------|
| QC MS | Analyte Spiked sample | | Spiked Lab # 21 | Recovered | Yield (%) | Limits (%) RPD (%) |
| LCS1 | Perchlorate | | 25.0 | 24.9 | 99.6 | (85.00 - 115.00) |
| LCS2 | Perchlorate | | 25.0 | 25.1 | 100.4 | (85.00 - 115.00) 0.80 |
| MBLK | Perchlorate | | ND | 20.1 | 100.1 | (65.00 - 115.00) 0.80 |
| MS | Perchlorate | | 25.0 | 26.6 | 106.4 | (80.00 - 120.00) |
| MSD | Perchlorate | | 25.0 | 26.0 | 104.0 | (80.00 - 120.00) 2.3 |
| | | | 23.0 | 20.0 | 104.0 | (80.00 - 120.00 / 2.3 |
| QC Ref | #140246 | Total O | rganic | Carbon | | |
| QC | Analyte | | Spiked | Recovered | Yield (%) | Limits (%) RPD (%) |
| AASPKSMP | Spiked sample | | Lab # 21 | 04260035 | | (0.00 - 0.00) |
| LCS1 | Total Organic Carbon | | 0.5 | 0.49 | 98.0 | (75.00 - 125.00) |
| LCS2 | Total Organic Carbon | | 4.5 | 4.59 | 102.0 | (75.00 - 125.00) |
| MBLK | Total Organic Carbon | | ND | | | |
| MS | Total Organic Carbon | | 4.0 | 4.07 | 101.8 | (90.00 - 110.00) |
| MSD | Total Organic Carbon | | 4.0 | 4.03 | 100.8 | (90.00 - 110.00) 0.99 |
| QC Ref | #140319 | Acetate | | | | |
| | | | | | | |
| QC | Analyte | | Spiked | Recovered | Yield (%) | Limits (%) RPD (%) |
| LCS1 | Acetate | | 5 | 5.09 | 101.8 | (80.00 - 120.00) |
| LCS2 | Acetate | | 5 | 5.39 | 107.8 | (80.00 - 120.00) 5.7 |
| | | | | | | |
| QC Ref | #140333 | Nitrate | by IC | as NO3 | & N | |
| QC | Analyte | | Spiked | Recovered | Yield (%) | Limits (%) RPD (%) |
| MS | Spiked sample | | Lab # 21 | 04250125 | | (0.00 - 0.00) |
| LCS1 | Nitrate-N | | 2.5 | 2.58 | 103.2 | (90.00 - 110.00) |
| LCS2 | Nitrate-N | | 2.5 | 2.58 | 103.2 | (90.00 - 110.00) 0.00 |
| MS | Nitrate-N | | 2.5 | 2.75 | 110.0 | (90.00 - 110.00) |
| | | | | | | |

Laboratory QC Report #78557

a Division of Montgomery Watson Americas, Inc 555 East Walnut Street Pasadena, California 91101 Te1: 626 568 6400 Fax: 626 568 6324 1800 566 LABS (1800 566 5227)

Foster Wheeler Environ. Inc. (continued)

MSD Nitrate-N 2.5 2.75 <u>110.0</u> (90.00 - 110.00) 0.00 MBLK Nitrate as NO3 by IC ND

QC Ref #140334 Nitrate by IC as NO3 & N

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|------|----------------------|----------|-----------|-----------|--------------------|---------|
| MS | Spiked sample | Lab # 21 | 04250125 | | (0.00 - 0.00) | |
| LCS1 | Nitrate-N | 2.5 | 2.58 | 103.2 | (90.00 - 110.00) | |
| LCS2 | Nitrate-N | 2.5 | 2.58 | 103.2 | (90.00 - 110.00) | 0.00 |
| MS | Nitrate-N | 2.5 | 2.75 | 110.0 | (90.00 - 110.00) | |
| MSD | Nitrate-N | 2.5 | 2.75 | 110.0 | (90.00 - 110.00) | 0.00 |
| MBLK | Nitrate as NO3 by IC | ND | | | | |



FOSTER WHEELER ENVIRONMENTAL CORPORATION

CHAIN OF CUSTODY FORM REQUEST FOR ANALYSIS

| PAGE OF | | RUSH DAYS | | THE INCOMVENIE | THIS SECTION WILL NOT | BE AVAILABLE TO | - HE PAGGRAIGHY | LOCATION DEPTH QC CODE | | · · · · · · · · · · · · · · · · · · · | | | | | | | | | | | SAMPLING COMMENTS | | , | lre) | |
|---------|-----------------------|-----------------------------------|-------------------|------------------|-----------------------|--------------------------|--------------------|--|--------------------|---------------------------------------|---------------------|--|--|--|--|---|--|--|--|---|--|---|------|---------------------------------|------|
| 5 | Non Hazard K Reactive | Toxic No Infectious | ANALYSES REQUIRED | | | Xoo | 1100 -20 -20 | M DT | X | X | XXX | | | | | | | The state of the s | der dem und der der der der der der der der der de | | w HCC preservative (for transfer | | temp | e) DATE RECEIVED BY (Signature) | |
| | į | + | nature) | L noty | | (ph); (849)756-7560 /4m) | ΙШ | (S) WATER SOIL OTHER (Describe) | X | Z2 mt X | mر × | And the state of t | and deposition is not more more containing about the principle of any other deposition of the principle of t | | | The fact of the first section of the fact | The state of the s | | | / | ml bottle wy HCC | , | | RELINQUISHED BY (Signature) | |
| OFSINO | | Ave Pusadena CA | SAMPLER'(Sign | Lame | watson Labs | 9151-9. | DATE NUMBER CONTA | COLLECTED COLLECTED CONTAINERS SIZE(S) | 4/24/01 2 XX125 ML | 4124/01 2 40 mL, 125 mL | 412401 4 4x125 mL | | | | A | | 10/2 | | | | abstituted (25 | | | | TIME |
| PROJECT | JPL PBR | PROJECT ADDRESS 4800 ONL Grove | SAMPLEH (Name) | LABORATORY THEFE | Homeny | , | SAMPLE TIME | | PBR-3-I-1 16:00 4 | PBR-3-I-7 16:05 4 | PBR-3-E-10 16:10 41 | | | And the second of the second o | The state of the s | | American design of the control of th | The state of the s | Addressed and the second of th | | LABORATORY INSTRUCTIONS/COMMENTS E-10 Carbux - Si | 3 | | RELINQUISHED RY Signature) | |



555 East Walnut Street
Pasadena, California 91101
Te1: 626 568 6400 Fax: 626 568 6324
1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Foster Wheeler Environ. Inc. 1940 E Deere St, Ste 200

Santa Ana , CA 92705

Attention: Mark Lossi Fax: 949 756-7560

DEB Debbie Frank Project Manager

Report#: 78435

TREAT

Laboratory certifies that the test results meet all **NELAC** requirements unless noted in the Comments section or the Case Narrative. Following the cover page are QC Report, QC Summary, Data Report, Hits Report, totaling 5 page[s].

Laboratory Hits Report #78435

Foster Wheeler Environ. Inc. Mark Lossi 1940 E Deere St, Ste 200 Santa Ana , CA 92705

Tel: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

Samples Received 24-apr-2001 12:46:03

| Analyzed | Sample# | Sample ID | Result | UNITS | MDL |
|--|---------------------------------|--------------|---------------------------|------------------------------|---------------------------------|
| | 2104240234 | PBR-2-I-1 | • | | |
| 04/24/01 04/24/01 04/25/01 | Nitrate Nitrate- Perchlor | | 20 4.5 410 | mg/l mg/l ug/l | .440 .100 40.000 |
| | 2104240235 | PBR-2-I-5 | | | |
| 04/25/01 04/25/01 | Acetate Total Or | ganic Carbon | 69 22.4 | mg/l mg/l | 5.000 2.500 |
| | 2104240236 | PBR-2-I-7 | | | |
| 04/25/01 04/25/01 | Acetate Total Or | ganic Carbon | 240 76.3 | mg/l mg/l | 10.000 5.000 |
| | 2104240237 | PBR-2-E-8 | | | |
| 04/24/01 04/24/01 04/25/01 04/25/01 | Nitrate- Perchlor | | 6.6 1.5 160 21.1 | mg/l mg/l ug/l mg/l | .880 .200 40.000 5.000 |
| | 2104240238 | PBR-2-E-10 | | | |
| 04/24/01 04/24/01 04/25/01 04/25/01 | Nitrate- Perchlor | | 6.2 1.4 110 60.8 | mg/l mg/l ug/l mg/l | .880 .200 40.000 5.000 |

Laboratory
Data Report
#78435

a Division of Montgomery Watson Americas, Inc 555 East Walnut Street Pasadena, California 91101 Tel: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc. Mark Lossi 1940 E Deere St, Ste 200 Santa Ana , CA 92705 Samples Received 04/24/01

| Prepared | Analyzed | QC Ref# | Method | Analyte | | Result | Units | MRL | Dilution |
|----------|----------------|---------|---------------|------------------|-------------|---------|-------|------|----------|
| PBR-2- | -I-1 (2104 | 124023 | (4) S | ampled on | 04/24/01 | 08:00 | | | |
| | 04/25/01 00:00 | 140081 | (CADHS/EPA31 | 4) Perchlorate | | 410 | ug/l | 40 | 10 |
| | | | Nitrate | by IC as | NO3 & N | | | | |
| | 04/24/01 16:18 | 140061 | (ML/EPA 300. | 0) Nitrate-N by | / IC | 4.5 | mg/l | 0.10 | 1 |
| | 04/24/01 16:18 | 140061 | (ML/EPA 300. | 0) Nitrate as N | 103 by IC | 20 | mg/l | 0.44 | 1 |
| PBR-2- | ·I-5 (2104 | 124023 | 5) S | ampled on | 04/24/01 | 08:00 | | | |
| | 04/25/01 00:00 | 139979 | (ML/EPA 300 | MOD) Acetate | | 69 | mg/l | 5.0 | 10 |
| | 04/25/01 00:00 | 140076 | (ML/SM 5310C |) Total Organi | .c Carbon ' | 22.4 | mg/l | 2.5 | 5 |
| PBR-2- | ·I-7 (2104 | 124023 | 6) s | ampled on | 04/24/01 | 08:00 | | | |
| | 04/25/01 00:00 | 139979 | (ML/EPA 300 | MOD) Acetate | | 240 | mg/l | 10 | 20 |
| | 04/25/01 00:00 | 140076 | (ML/SM 5310C |) Total Organi | c Carbon | 76.3 | mg/l | 5.0 | 10 |
| PBR-2- | ·E-8 (2104 | 124023 | 7) S | ampled on | 04/24/01 | 08:00 | | | |
| | 04/25/01 00:00 | 140081 | (CADHS/EPA31 | 4) Perchlorate | | 160 | ug/l | 40 | 10 |
| | 04/25/01 00:00 | 140076 | (ML/SM 5310C |) Total Organi | .c Carbon | 21.1 | mg/l | 5.0 | 10 |
| | | | Nitrate | by IC as | NO3 & N | | | | |
| | 04/24/01 16:06 | 140060 | (ML/EPA 300. | 0) Nitrate-N by | , IC | 1.5 | mg/l | 0.20 | 2 |
| | 04/24/01 16:06 | 140060 | (ML/EPA 300. | 0) Nitrate as N | 103 by IC | 6.6 | mg/l | 0.88 | 2 |
| PBR-2- | E-10 (210 | 42402 | 38) | Sampled on | 04/24/0 | 1 08:00 | | | |
| | 04/25/01 00:00 | 140081 | (CADHS/EPA31 | 4) Perchlorate | | 110 | ug/l | 40 | 10 |
| | 04/25/01 00:00 | 140076 | (ML/SM 5310C |) Total Organi | c Carbon | 60.8 | mg/l | 5.0 | 10 |
| | | | Nitrate | by IC as | NO3 & N | | | | |
| | 04/24/01 15:56 | 140058 | (ML/EPA 300. | O) Nitrate-N by | · IC | 1.4 | mg/l | 0.20 | 2 |
| | 04/24/01 15:56 | 140058 | (ML/EPA 300. | O) Nitrate as N | 03 by IC | 6.2 | mg/l | 0.88 | 2 |

Laboratory
QC Summary
#78435

a Division of Montgomery Watson Americas, Inc. 555 East Walnut Street Pasadena, California 91101 Te1: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc.

| QC Ref | #139979 - Acetate | Analysis Date: 04/25/2001 |
|--------|--|-------------------------------|
| | 2104240235 PBR-2-I-5 2104240236 PBR-2-I-7 | |
| QC Ref | #140058 - Nitrate by IC as NO3 | & N Analysis Date: 04/24/2001 |
| | 2104240238 PBR-2-E-1 | 0 |
| QC Ref | #140060 - Nitrate by IC as NO3 | & N Analysis Date: 04/24/2001 |
| | 2104240237 PBR-2-E-8 | |
| QC Ref | #140061 - Nitrate by IC as NO3 | & N Analysis Date: 04/24/2001 |
| | 2104240234 PBR-2-I-1 | |
| QC Ref | #140076 - Total Organic Carbon | Analysis Date: 04/25/2001 |
| | 2104240235 PBR-2-I-5 2104240236 PBR-2-I-7 | |
| | 2104240237 PBR-2-E-8 | |
| | 2104240238 PBR-2-E-1 | 0 |
| QC Ref | #140081 - Perchlorate | Analysis Date: 04/25/2001 |
| | 2104240234 PBR-2-I-1 | |
| | 2104240237 PBR-2-E-8 2104240238 PBR-2-E-1 | 0 |



7 Styles of Walnut Street
Pasadena, California 91101
Te1: 626 568 6400 Fax: 626 568 6324
1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc.

| QC | Ref | #139979 | Acetate | | | | |
|---------------------------------|-----|--|---------|--|--|---|---|
| QC | | Analyte | | Spiked | Recovered | Yield (%) | Limits (%) RPD (%) |
| LCS1 | | Acetate | | 5 | 4.99 | 99.8 | (80.00 - 120.00) |
| LCS2 | | Acetate | | 5 | 5.14 | 102.8 | (80.00 - 120.00) 3.0 |
| | | | | | | | |
| QC | Ref | #140058 | Nitrate | by IC | as NO3 | & N | |
| QC | | Analyte | | Spiked | Recovered | Yield (%) | Limits (%) RPD (%) |
| MS | | Spiked sample | | Lab # 21 | 04240234 | | (0.00 - 0.00) |
| LCS1 | | Nitrate-N | | 2.5 | 2.53 | 101.2 | (90.00 - 110.00) |
| LCS2 | | Nitrate-N | | 2.5 | 2.59 | 103.6 | (90.00 - 110.00) 2.3 |
| MS | | Nitrate-N | | 2.5 | 2.7 | 108.0 | (90.00 - 110.00) |
| MSD | | Nitrate-N | | 2.5 | 2.9 | 116.0 | (90.00 - 110.00) 7.1 |
| MBLK | | Nitrate as NO3 by IC | | ND | | | |
| | | | | | | | |
| QC | Ref | #140060 | Nitrate | by IC | as NO3 | & N | |
| QC Qc | Ref | #140060 | Nitrate | by IC | as NO3 | & N Yield (%) | Limits (%) RPD (%) |
| | Ref | | Nitrate | _ | | | Limits (%) RPD (%) |
| QC | Ref | Analyte | Nitrate | Spiked | Recovered | | |
| QC MS | Ref | Analyte Spiked sample | Nitrate | Spiked Lab # 21 | Recovered | Yield (%) | (0.00 - 0.00) |
| QC MS LCS1 | Ref | Analyte Spiked sample Nitrate-N | Nitrate | Spiked Lab # 21 2.5 | Recovered 04240234 2.53 | Yield (%) | (0.00 - 0.00) (90.00 - 110.00) |
| QC MS LCS1 LCS2 | Ref | Analyte Spiked sample Nitrate-N Nitrate-N | Nitrate | Spiked Lab # 21 2.5 2.5 | Recovered 04240234 2.53 2.59 | Yield (%) 101.2 103.6 | (0.00 - 0.00) (90.00 - 110.00) (90.00 - 110.00) 2.3 |
| QC MS LCS1 LCS2 MS | Ref | Analyte Spiked sample Nitrate-N Nitrate-N | Nitrate | Spiked Lab # 21 2.5 2.5 | Recovered 04240234 2.53 2.59 | Yield (%) 101.2 103.6 108.0 | (0.00 - 0.00) (90.00 - 110.00) (90.00 - 110.00) 2.3 (90.00 - 110.00) |
| QC MS LCS1 LCS2 MS | Ref | Analyte Spiked sample Nitrate-N Nitrate-N Nitrate-N | Nitrate | Spiked Lab # 21 2.5 2.5 2.5 | Recovered 04240234 2.53 2.59 | Yield (%) 101.2 103.6 108.0 | (0.00 - 0.00) (90.00 - 110.00) (90.00 - 110.00) 2.3 (90.00 - 110.00) |
| QC MS LCS1 LCS2 MS MSD | | Analyte Spiked sample Nitrate-N Nitrate-N Nitrate-N | Nitrate | Spiked Lab # 21 2.5 2.5 2.5 ND | Recovered 04240234 2.53 2.59 2.7 | Yield (%) 101.2 103.6 108.0 116.0 | (0.00 - 0.00) (90.00 - 110.00) (90.00 - 110.00) 2.3 (90.00 - 110.00) |
| QC MS LCS1 LCS2 MS MSD | | Analyte Spiked sample Nitrate-N Nitrate-N Nitrate-N Nitrate-N Nitrate as NO3 by IC | | Spiked Lab # 21 2.5 2.5 2.5 ND | Recovered 04240234 2.53 2.59 2.7 | Yield (%) 101.2 103.6 108.0 116.0 | (0.00 - 0.00) (90.00 - 110.00) (90.00 - 110.00) 2.3 (90.00 - 110.00) |
| QC MS LCS1 LCS2 MS MSD MBLK | | Analyte Spiked sample Nitrate-N Nitrate-N Nitrate-N Nitrate-N Nitrate as NO3 by IC | | Spiked Lab # 21 2.5 2.5 2.5 2.5 ND by IC Spiked | Recovered 04240234 2.53 2.59 2.7 2.9 | Yield (%) 101.2 103.6 108.0 116.0 | (0.00 - 0.00) (90.00 - 110.00) (90.00 - 110.00) 2.3 (90.00 - 110.00) (90.00 - 110.00) 7.1 |
| QC MS LCS1 LCS2 MS MSD MBLK QC | | Analyte Spiked sample Nitrate-N Nitrate-N Nitrate-N Nitrate as NO3 by IC #140061 Analyte | | Spiked Lab # 21 2.5 2.5 2.5 2.5 ND by IC Spiked | Recovered 04240234 2.53 2.59 2.7 2.9 | Yield (%) 101.2 103.6 108.0 116.0 | (0.00 - 0.00) (90.00 - 110.00) (90.00 - 110.00) 2.3 (90.00 - 110.00) (90.00 - 110.00) 7.1 |
| QC MS LCS1 LCS2 MS MSD MBLK QC | | Analyte Spiked sample Nitrate-N Nitrate-N Nitrate-N Nitrate as NO3 by IC #140061 Analyte Spiked sample | | Spiked Lab # 21 2.5 2.5 2.5 2.5 ND by IC Spiked Lab # 21 | Recovered 04240234 2.53 2.59 2.7 2.9 as NO3 Recovered 04240234 | Yield (%) 101.2 103.6 108.0 116.0 & N Yield (%) | (0.00 - 0.00) (90.00 - 110.00) (90.00 - 110.00) 2.3 (90.00 - 110.00) (90.00 - 110.00) 7.1 Limits (%) RPD (%) |

Laboratory QC Report #78435

a Division of Montgomery Watson Americas, Inc 555 East Walnut Street Pasadena, California 91101 Tel: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc. (continued)

LCS2

MBLK

MS

MSD

Perchlorate

Perchlorate

Perchlorate

Perchlorate

| MSD MBLK | Nitrate-N Nitrate as NO3 by IC | | 2.5 ND | 2.9 | 116.0 | (90.00 - 110.00 |) 7.1 |
|-------------|-----------------------------------|----------|-----------|-----------|-----------|------------------|---------|
| QC Ref | #140076 | Total Or | ganic | Carbon | | | |
| δG | Analyte | : | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
| AASPKSMP | Spiked sample | . 1 | Lab # 21 | 04240308 | | (0.00 - 0.00 |) |
| LCS1 | Total Organic Carbon | (| 0.5 | 0.48 | 96.0 | (75.00 - 125.00 |) |
| LCS2 | Total Organic Carbon | • | 4.5 | 4.39 | 97.6 | (75.00 - 125.00 |) |
| MBLK | Total Organic Carbon | 1 | ND | | | | |
| MS | Total Organic Carbon | 4 | 4.0 | 4.18 | 104.5 | (90.00 - 110.00 |) |
| MSD | Total Organic Carbon | • | 4.0 | 4.14 | 103.5 | (90.00 - 110.00 | 0.96 |
| | | | | | | | |
| QC Ref | #140081 | Perchlor | ate | | | | |
| QC | Analyte | ٤ | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
| MS | Spiked sample | 1 | Lab # 21 | 04230025 | | (0.00 - 0.00 |) |
| LCS1 | Perchlorate | 2 | 25.0 | 24.9 | 99.6 | (85.00 - 115.00 |) |

25.0

25.0

25.0

ND

25.1

26.6

26.0

100.4

106.4

104.0

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining</u>. Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

(85.00 - 115.00) 0.80

(80.00 - 120.00) 2.3

(80.00 - 120.00)



FOSTER WHEELER ENVIRONMENTAL CORPORATION $_{78}435$

| . (| ANALYSIS |
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| PAGE OF | | DAYS | | THE INFORMATION IN | THIS SECTION WILL NOT | BE AVAILABLE TO | | LOCATION DEPTH QC CODE | | | | | | | | | | SAMPLING COMMENTS | | |
|-------------|--|-----------------|-------------------|--------------------|-----------------------|------------------------|------------------|-------------------------------|-------------------|------------|---------------|-------------|---------------|--|---|--|--|----------------------------------|-----------------------------------|--------------|
| 5 | NTIFICATION TIME REQUIRE Reactive □ NOSAM □ | RUSH (\$1.22) | ANALYSES REQUIRED | | | XOC |)))) | | K | × × | XX | X | × | | | | | | DATE RECEIVED BY (Signature) | TIME COMPANY |
| | T. NoN | s CA | (Signature) | and for | Laks | 1516 (Fréo GE) 1. | | SIZE(S) WATER SOIL (Describe) | X X | MS2/X) | | | 3x12sup X X | | A DESCRIPTION OF THE PROPERTY | | | | ture) RELINQUISHED BY (Signature) | COMPANY |
| OK SHOT | tol | dr Pasa | SAMIBLER | | Montgomeny Water | 71.5 t 9.5 t (6/6) 150 | | · (C | 10 4/24/12 2x125m | 1/24/0/1 2 | 11 2 19 Walk | , (3/2d/s) | 4/24/01 3 |), | | | | NIS/COMMENTS | DATE BY WENEFIED BY (Signature) | TIME COMPANY |
| PROJECT .) | 1PC | PROJECT ADDRESS | SAMPLER (Name) | ~-1 | Mont | HEPORIS TO BESENT TO U | SAMPLE | | PBR-2-21 8 B | | PAR-2-I-7 878 | PB-25-8 600 | PBR-26-10 SIG | <u>, </u> | | | | LABORATORY INSTRUCTIONS/COMMENTS | REJNOUISHED BY (Bignature) | GOMPANY |



555 East Walnut Street
Pasadena, California 91101
Te1: 626 568 6400 Fax: 626 568 6324
1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Foster Wheeler Environ. Inc. 1940 E Deere St, Ste 200

Santa Ana , CA 92705

Attention: Mark Lossi Fax: 949 756-7560

DEB Debbie Frank Project Manager

Report#: 78295

TREAT

Laboratory certifies that the test results meet all **NELAC** requirements unless noted in the Comments section or the Case Narrative. Following the cover page are QC Report, QC Summary, Data Report, Hits Report, totaling 7 page[s].

a Division of Montgomery Watson Americas 555 East Walnut Street Pasadena, California 91101 Te1: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227) Laboratory
Hits Report
#78295

Foster Wheeler Environ. Inc. Mark Lossi 1940 E Deere St, Ste 200 Santa Ana , CA 92705

Samples Received 20-apr-2001 13:11:38

| Analyzed | Sample# | Sample ID | Result | UNITS | MDL |
|--|----------------------|---|-------------------------|------------------------------|--------------------------------|
| | 2104200072 | PBR-1-I-1 | | | |
| 04/20/01 04/20/01 04/22/01 | | as NO3 by IC -N by IC rate | 3.1 0.7 420 | mg/l mg/l ug/l | .440 .100 40.000 |
| | 2104200073 | PBR-1-I-5 | | | |
| 04/25/01 04/23/01 | Acetate Total O | rganic Carbon | 5.1 23.9 | mg/l mg/l | 5.000 12.500 |
| | 2104200074 | PBR-1-I-7 | | | |
| 04/25/01 04/23/01 | Acetate Total O | rganic Carbon | 90 38.4 | mg/l mg/l | 5.000 12.500 |
| | 2104200075 | PBR-1-E-8 | | | |
| 04/20/01 04/20/01 04/22/01 04/23/01 | Nitrate- Perchlon | | 20 4.5 26 15.3 | mg/l mg/l ug/l mg/l | .440 .100 4.000 2.500 |
| | 2104200076 | PBR-1-E-10 | | | |
| 04/20/01 04/20/01 04/25/01 04/23/01 | Nitrate- Acetate | as NO3 by IC -N by IC rganic Carbon | 12 2.7 13 24.5 | mg/l mg/l mg/l mg/l | .880 .200 5.000 |
| | 2104200077 | PBR-1-E-16 | | | |

Laboratory
Data Report
#78295

a Division of Montgomery Watson Americas, 555 East Walnut Street Pasadena, California 91101 Te1: 625 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc. Mark Lossi 1940 E Deere St, Ste 200 Santa Ana , CA 92705 Samples Received 04/20/01

| Prepared Analyzed QC Ref# Method Analyte | Result | Units | MRL | Dilution |
|---|----------|-------|------|----------|
| PBR-1-I-1 (2104200072) Sampled on 04/20/01 | 11:15 | | | |
| 04/22/01 00:00 139852 (CADHS/EPA314) Perchlorate | 420 | ug/l | 40 | 10 |
| Nitrate by IC as NO3 & N | | | | |
| 04/20/01 18:07 139812 (ML/EPA 300.0) Nitrate-N by IC | 0.7 | mg/l | 0.10 | 1 |
| 04/20/01 18:07 139812 (ML/EPA 300.0) Nitrate as NO3 by IC | 3.1 | mg/l | 0.44 | 1 |
| PBR-1-I-5 (2104200073) Sampled on 04/20/01 | 11:20 | | | |
| 04/25/01 00:00 139979 (ML/EPA 300 MOD) Acetate | 5.1 | mg/l | 5.0 | 10 |
| 04/23/01 00:00 139920 (ML/SM 5310C) Total Organic Carbon | 23.9 | mg/l | 12 | 25 |
| PBR-1-I-7 (2104200074) Sampled on 04/20/01 | 11:20 | | | |
| 04/25/01 00:00 139979 (ML/EPA 300 MOD) Acetate | 90 | mg/l | 5.0 | 10 |
| 04/23/01 00:00 139920 (ML/SM 5310C) Total Organic Carbon | 38.4 | mg/l | 12 | 25 |
| PBR-1-E-8 (2104200075) Sampled on 04/20/01 | 11:25 | | | |
| 04/25/01 00:00 139979 (ML/EPA 300 MOD) Acetate | ND | mg/l | 1.0 | 2 |
| 04/22/01 00:00 139852 (CADHS/EPA314) Perchlorate | 26 | ug/l | 4.0 | 1 |
| 04/23/01 00:00 139920 (ML/SM 5310C) Total Organic Carbon | 15.3 | mg/l | 2.5 | 5 |
| Nitrate by IC as NO3 & N | | | | * |
| 04/20/01 18:17 139814 (ML/EPA 300.0) Nitrate-N by IC | 4.5 | mg/l | 0.10 | 1 |
| 04/20/01 18:17 139814 (ML/EPA 300.0) Nitrate as NO3 by IC | 20 | mg/l | 0.44 | 1 |
| PBR-1-E-10 (2104200076) Sampled on 04/20/09 | 1 11:25 | | | |
| 04/25/01 00:00 139979 (ML/RPA 300 MOD) Acetate | 13 | mg/l | 5.0 | 10 |
| 04/22/01 00:00 139790 (CADHS/EPA314) Perchlorate | ND | ug/l | 4.0 | 1 |
| 04/23/01 00:00 139920 (ML/SM 5310C) Total Organic Carbon | 24.5 | mg/l | 5.0 | 10 |
| Nitrate by IC as NO3 & N | | | | |
| 04/20/01 16:39 139815 (ML/EPA 300.0) Nitrate-N by IC | · 2.7 | mg/l | 0.20 | 2 |
| 04/20/01 16:39 139815 (ML/EPA 300.0) Nitrate as NO3 by IC | 12 | mg/l | 0.88 | 2 |

Laboratory
Data Report
#78295

a Division of Montgomery Watson Americas, 555 East Walnut Street Pasadena, California 91101 Te1: 625 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc. (continued)

| Prepared Analyzed | QC Ref# | Method | Analyte | Result | Units | MRL | Dilution |
|-------------------|------------|------------|---------------------|----------------|-------|-----|----------|
| PBR-1-E-16 (2 | | • | - | 04/20/01 11:30 | | | |
| 04/22/01 00 | :00 139790 | (CADHS/EI | PA314) Perchlorate | ND | ug/l | 4.0 | 1 |

Laboratory QC Summary #78295

Foster Wheeler Environ. Inc.

Te1: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

| QC Ref | #139790 - Perchlorate | Analysis Date: 04/22/2001 |
|--------|---|-----------------------------|
| | 2104200076 PBR-1-E-10 2104200077 PBR-1-E-16 | |
| QC Ref | #139812 - Nitrate by IC as NO3 & | N Analysis Date: 04/20/2001 |
| | 2104200072 PBR-1-I-1 | |
| QC Ref | #139814 - Nitrate by IC as NO3 & | N Analysis Date: 04/20/2001 |
| | 2104200075 PBR-1-E-8 | |
| QC Ref | #139815 - Nitrate by IC as NO3 & | N Analysis Date: 04/20/2001 |
| | 2104200076 PBR-1-E-10 | |
| QC Ref | #139852 - Perchlorate | Analysis Date: 04/22/2001 |
| | 2104200072 PBR-1-I-1 2104200075 PBR-1-E-8 | |
| QC Ref | #139920 - Total Organic Carbon | Analysis Date: 04/23/2001 |
| | 2104200073 PBR-1-I-5 2104200074 PBR-1-I-7 2104200075 PBR-1-E-8 2104200076 PBR-1-E-10 | |
| QC Ref | #139979 - Acetate | Analysis Date: 04/25/2001 |
| | 2104200073 PBR-1-I-5 2104200074 PBR-1-I-7 2104200075 PBR-1-E-8 2104200076 PBR-1-E-10 | |



a Division of Montgomery Watson Americas, In 555 East Walnut Street Pasadena, California 91101 Te1: 626 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc.

Nitrate as NO3 by IC

MBLK

| QC Ref | #139790 | Perchlo | rate | | | | |
|--------|----------------------|---------|----------|-----------|-----------|--------------------|---------|
| QC | Analyte | | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
| MS | Spiked sample | | Lab # 21 | 04100151 | | (0.00 - 0.00) | |
| LCS1 | Perchlorate | | 25.0 | 24.7 | 98.8 | (85.00 - 115.00) | |
| LCS2 | Perchlorate | | 25.0 | 26.0 | 104.0 | (85.00 - 115.00) | 5.1 |
| MBLK | Perchlorate | | ND | | | | |
| QC Ref | #139812 | Nitrate | by IC | as NO3 | & N | | |
| QC | Analyte | | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
| MS | Spiked sample | | Lab # 21 | 04160086 | | (0.00 - 0.00) | |
| LCS1 | Nitrate-N | | 2.5 | 2.61 | 104.4 | (90.00 - 110.00) | |
| LCS2 | Nitrate-N | | 2.5 | 2.59 | 103.6 | (90.00 - 110.00) | 0.77 |
| MS | Nitrate-N | | 2.5 | 2.64 | 105.6 | (90.00 - 110.00) | |
| MSD | Nitrate-N | | 2.5 | 2.64 | 105.6 | (90.00 - 110.00) | 0.00 |
| MBLK | Nitrate as NO3 by IC | | ND | | | | |
| QC Ref | #139814 | Nitrate | by IC | as NO3 | & N | | |
| QC | Analyte | | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
| MS | Spiked sample | | Lab # 21 | 04160086 | | (0.00 - 0.00) | |
| LCS1 | Nitrate-N | | 2.5 | 2.61 | 104.4 | (90.00 - 110.00) | |
| LCS2 | Nitrate-N | | 2.5 | 2.59 | 103.6 | (90.00 - 110.00) | 0.77 |
| MS | Nitrate-N | | 2.5 | 2.64 | 105.6 | (90.00 - 110.00) | |
| MSD | Nitrate-N | | 2.5 | 2.64 | 105.6 | (90.00 - 110.00) | 0.00 |

ND



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Foster Wheeler Environ. Inc. (continued)

QC Ref #139815

Analyte

Spiked sample

Total Organic Carbon

OC

LCS1

LCS2

MBLK

MS

MSD

AASPKSMP

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|----------------------------------|---|--|--|-----------------------|---|-----------------|
| MS | Spiked sample | Lab # 21 | 04160086 | | (0.00 - 0.00 |) |
| LCS1 | Nitrate-N | 2.5 | 2.61 | 104.4 | (90.00 - 110.00 |) |
| LCS2 | Nitrate-N | 2.5 | 2.59 | 103.6 | (90.00 - 110.00 | 0.77 |
| MS | Nitrate-N | 2.5 | 2.64 | 105.6 | (90.00 - 110.00 |) |
| MSD | Nitrate-N | 2.5 | 2.64 | 105.6 | (90.00 - 110.00 | 0.00 |
| MBLK | Nitrate as NO3 by IC | ND | | | | |
| | | | | | | |
| | | | | | | |
| QC Ref | #139852 | Perchlorate | | | | |
| | | | | | | |
| | | | | | | |
| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
| QC MS | Analyte Spiked sample | Spiked Lab # 21 | | Yield (%) | Limits (%) | |
| - | - | - | | Yield (%) | |) |
| MS | Spiked sample | Lab # 21 | 04200077 | | (0.00 - 0.00 |) |
| MS LCS1 | Spiked sample Perchlorate | Lab # 21 25.0 | 04200077 23.3 | 93.2 | (0.00 - 0.00) (85.00 - 115.00) |) |
| MS LCS1 LCS2 | Spiked sample Perchlorate Perchlorate | Lab # 21 25.0 25.0 | 04200077 23.3 | 93.2 | (0.00 - 0.00) (85.00 - 115.00) |))) 7.0 |
| MS LCS1 LCS2 MBLK | Spiked sample Perchlorate Perchlorate Perchlorate | Lab # 21 25.0 25.0 ND | 04200077 23.3 25.0 | 93.2 | (0.00 - 0.00) (85.00 - 115.00) (85.00 - 115.00) |))) 7.0 |
| MS LCS1 LCS2 MBLK MS | Spiked sample Perchlorate Perchlorate Perchlorate Perchlorate | Lab # 21 25.0 25.0 ND 25.0 | 04200077 23.3 25.0 | 93.2 100.0 93.2 | (0.00 - 0.00) (85.00 - 115.00) (85.00 - 115.00) |))) 7.0 |
| MS LCS1 LCS2 MBLK MS | Spiked sample Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate | Lab # 21 25.0 25.0 ND 25.0 25.0 | 04200077 23.3 25.0 23.3 23.3 | 93.2 100.0 93.2 | (0.00 - 0.00) (85.00 - 115.00) (85.00 - 115.00) |))) 7.0 |
| MS LCS1 LCS2 MBLK MS | Spiked sample Perchlorate Perchlorate Perchlorate Perchlorate Perchlorate | Lab # 21 25.0 25.0 ND 25.0 | 04200077 23.3 25.0 23.3 23.3 | 93.2 100.0 93.2 | (0.00 - 0.00) (85.00 - 115.00) (85.00 - 115.00) |))) 7.0 |

Spiked

0.5

4.5

ND

4.0

Recovered

Lab # 21 04200133

0.48

4.60

4.00

3.98

Yield (%)

96.0

102.2

100.0

99.5

Limits (%)

(0.00 - 0.00)

(75.00 - 125.00)

(75.00 - 125.00)

(90.00 - 110.00)

(90.00 - 110.00) 0.50

RPD (%)

Nitrate by IC as NO3 & N



Laboratory QC Report #78295

a Division of Montgomery Watson Americas, Inc 555 East Walnut Street Pasadena, California 91101 Te1: 625 568 6400 Fax: 626 568 6324 1 800 566 LABS (1 800 566 5227)

Foster Wheeler Environ. Inc. (continued)

QC Ref #139979

Acetate

| QC | Analyte | Spiked | Recovered | Yield (%) | Limits (%) | RPD (%) |
|------|---------|--------|-----------|-----------|--------------------|---------|
| LCS1 | Acetate | 5 | 4.99 | 99.8 | (80.00 - 120.00) | |
| LCS2 | Acetate | 5 | 5.14 | 102.8 | (80.00 - 120.00) | 3.0 |



FOSTER WHEELER ENVIRONMENTAL CORPORATION

28282

CHAIN OF CUSTODY FORM REDITEST FOR ANALYSIS

| | | · · · · · · · · · · · · · · · · · · · | • | THE INFORMATION IN | THIS SECTION WILL NOT | BE AVAILABLE TO | THE LABORATORY | LOCATION DEPTH QC CODE | | | | | | 5,0 # 15 | | | | SAMPLING COMMENTS | ~ ~ ~ ~ ~ ~ | | |
|------------------------|---------|---|---------------------|--------------------|--|------------------------------|------------------------|--|------------------------|--------------------------|---------------------------|-------------------|---------------------|----------------------------|--|--|--|----------------------------------|-------------|--|-----|
| MINEGOES! FOR ANALTSIS | | -= | ANALYSES REQUIRED | | - 7 | , | (09- | 10 C C C C C C C C C C C C C C C C C C C | X | XXX (i) | ×××× | | | X | | : | | | | DATE RECEIVED BY (Signature) TIME COMPANY | |
| | OFS NO. | dena, CA- | SAMPLER (Signature) | tand late | torles | 516 , (999) 756 – 7560 (Fax) | CONTAINER | NERS SIZE(S) WATER SOIL OTHER (Describe) | 125,250 mL X | 40 , 125, 500 X | × 005, 251, 044 | 70, 125(3), 500 X | × 00, 125(3), 500 × | 250,125 | | | | | 7 | RECEIVED BY Separature) RELINQUISHED BY (Signature) COMPANY COMPANY RELINGUISHED BY (Signature) | N.B |
| | TPL PBR | PROJECT ADDRESS 4800 ONK Grave. DAVE., Pasadena | SAMPLEH (Name) | ~ | Muntagmery Wartson Comborostones Reports To be SENT AO | Mark Losi (999) 756-7516 | SAMPLE TIME DATE NUMBE | NUMBER COLLECTED COLLECTED CONTRINERS | PB-1-I-1 11:15 42001 3 | PBR-1-1-5 11:20 420/01 3 | PSC-1-I-7 11:20 4120/01 3 | - 1 | 10/0214 | 188-1-E-16 11 30 4120/01 2 | | The state of the s | | LABORATORY INSTRUCTIONS/COMMENTS | | RELINGUISHED BY (Signature) GONFRANY GONFRANY | |